

WE CLAIM:

1. An eyepiece for swim goggles comprising:

a protective body adapted to be worn over an eye of a user;

an adhesive layer that adhesively secures the body to the skin of the user in close

5 proximity to the eye so as to form a substantially water-tight seal around the eye that substantially isolates the eye from the surrounding environment during use.

2. The eyepiece of claim 1, wherein:

the body comprises a transparent lens portion and a frame portion surrounding the lens

10 portion wherein the frame portion is shaped to generally conform to the shape of the orbital rim;

and

the adhesive layer is carried by the frame portion.

3. The eyepiece of claim 2, wherein the frame portion is configured to enable the

15 user to retain the eyepiece in place by contracting the orbicularis oculi muscles against the frame portion.

4. The eyepiece of claim 1, wherein the adhesive layer comprises adhesive tape.

20 5. The eyepiece of claim 2, wherein the frame portion is configured to fit at least partially within the orbital rim.

6. The eye piece of claim 1, further comprising a cover layer overlaying the adhesive layer and adapted to be removed from the adhesive layer prior to use.

7. Swim goggles comprising a pair of unconnected eyepieces, each eyepiece adapted to provide a water-tight seal around an eye of a user during use of the goggles.

8. The goggles of claim 7, wherein each eyepiece includes a body and an adhesive for adhering the body to the user's skin adjacent a respective eye.

9. The goggles of claim 7, wherein each eyepiece comprises a peripheral flange that is shaped to generally conform to the shape of an orbital rim and a lens portion positioned in front of an eye when the eyepiece is being worn.

10. The goggles of claim 9, wherein each peripheral flange is sized and shaped to fit at least partially within a respective orbital rim.

11. The goggles of claim 10, wherein each peripheral flange has an upper nasal portion and a lower nasal portion that fit within a respective orbital rim.

12. The goggles of claim 11, wherein each peripheral flange has a lower temporal portion that fits at least partially within a respective orbital rim.

13. The goggles of claim 7, wherein each eyepiece has a minimum depth of less than 8 mm.

14. The goggles of claim 13, wherein each eyepiece has a minimum depth of about 5.75 mm or less.

15. The goggles of claim 7, wherein each eyepiece has a layer of adhesive tape for adhesively securing the eyepiece to the skin.

16. The goggles of claim 15, wherein the layer of adhesive tape comprises a deformable layer having an adhesive surface for adhering to the skin.

17. The goggles of claim 7, wherein each eyepiece comprises a transparent lens portion and a frame portion, wherein the eyepieces can be retained in place by contracting the orbicularis oculi muscles against the frame portions.

18. The goggles of claim 7, wherein each eyepiece comprises a flat anterior lens portion that is positioned in front of an eye in an as worn orientation and a flat side lens portion that extends rearwardly and temporally from a respective anterior lens portion at an obtuse angle.

19. The goggles of claim 18, wherein each eyepiece comprises an annular peripheral wall that surrounds a respective anterior lens portion and side lens portion and extends rearwardly therefrom.

20. A method of using strapless swim goggles comprising a pair of unconnected eyepieces, the method comprising securing the eyepieces to a user's face adjacent the eyes without the aid of a strap extending around the user's head.

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21. The method of claim 20, wherein securing each eyepiece to the user's face comprises creating a vacuum between each eyepiece and the face.

22. The method of claim 20, wherein securing each eyepiece to the user's face
10 comprises adhering each eyepiece to the skin.

23. The method of claim 20, wherein securing each eyepiece to the user's face
comprises retaining the eyepieces in place by contracting the orbicularis oculi muscles against
the eyepieces.

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24. The method of claim 20, wherein securing the eyepieces to the user's face creates
a water-tight seal between the face and the eyepieces.

25. The method of claim 20, wherein securing each eyepiece to the user's face
20 comprises positioning at least a portion of each eyepiece within an orbital rim.

26. An eyepiece for swim goggles comprising:

a body comprising a transparent lens and a peripheral flange surrounding the lens, the flange having a posterior surface; and

5 an adhesive layer mounted on the posterior surface of the flange.

27. The eyepiece of claim 26, wherein the lens comprises a flat anterior lens portion that is positioned in front of an eye in an as worn orientation and a flat side lens portion that extends rearwardly and temporally from the anterior lens portion at an obtuse angle.

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28. The eyepiece of claim 26, wherein the lens comprises a flat anterior lens portion that is positioned in front of an eye in an as worn orientation, and the body further comprises an annular peripheral wall that surrounds the anterior lens portion extends between the anterior lens portion and the flange.

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29. The eyepiece of claim 26, wherein the lens has optical power.

30. An eyepiece for swim goggles comprising:

an anterior lens that is positioned in front of an eye in an as worn orientation, the lens

20 having a posterior surface and an anterior surface defining a lens thickness therebetween; and

a peripheral flange shaped to generally conform to the shape of the orbital rim, the flange having a posterior surface;

wherein the posterior surface of the flange and the posterior surface of the lens define a minimum depth of the eyepiece that is less than 8 mm.

31. The eyepiece of claim 30, wherein the minimum depth is 5.75 mm or less.

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32. Swim goggles comprising:

a pair of unconnected eyepieces, each eyepiece adapted to provide a water-tight seal around an eye of a user during use of the goggles;

each eyepiece comprising a transparent lens portion and a frame portion surrounding the lens portion, each frame portion being configured to fit at least partially within an orbital rim, each frame portion being adapted as to enable the user to retain the eyepieces against the face by contracting the orbicularis oculi muscles;

a layer of adhesive tape secured to frame portion of each eyepiece and having an adhesive surface for adhering to the skin adjacent the eye; and

15 a removable cover layer overlaying the adhesive surface of each layer of adhesive tape.

33. An eyepiece for swim goggles comprising a body adapted to be worn over the eye of a user and form a water-tight seal around the eye that isolates the eye from the surrounding environment during use, the body comprising a transparent lens portion that includes a first, flat anterior lens that is positioned in front of the eye in an as worn orientation and at least a second, flat lens connected to the anterior lens at an obtuse angle and extending rearwardly therefrom, wherein the second lens reduces prismatic distortion of the lens portion.

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34. The eyepiece of claim 33, wherein the second lens is a side lens that extends rearwardly and temporally from the anterior lens, wherein the side lens reduces hydrodynamic drag of the eyepiece and prismatic distortion of the lens portion.

5 35. The eyepiece of claim 34, wherein the side lens is connected to the anterior lens at an angle at which a line of sight extends perpendicularly with respect to the side lens whenever the eye is rotated temporally to a position at which the visual axis intersects a midpoint of the side lens.

10 36. The eyepiece of claim 35, wherein the side lens is connected to the anterior lens at an angle of approximately 124° to 164° .

37. The eyepiece of claim 36, wherein the side lens is connected to the anterior lens at an angle of about 144° .

15 38. The eyepiece of claim 33, wherein the body includes a frame portion that is coupled to the lens portion and is shaped to generally conform to the shape of the orbital rim.

39. The eyepiece of claim 38, wherein the frame portion has an adhesive layer that
20 adhesively secures the eyepiece to the skin of the user in close proximity of the eye.

40. Swim goggles comprising a pair of eyepieces, each eyepiece being shaped to provide a water-tight seal around an eye of a user during use of the goggles, each eyepiece

having a flat, transparent anterior lens that is positioned in front of a respective eye in an as worn orientation and a flat, transparent side lens connected to and inclined away from a respective anterior lens in a temporal direction so as to reduce hydrodynamic drag and prismatic distortion of the respective eyepiece.

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41. The swim goggles of claim 40, wherein each eyepiece has a minimum depth of 6 mm or less.

42. The swim goggles of claim 40, wherein the side lens is oriented with respect to
10 the anterior lens such that a line of sight along the visual axis intersects the side lens at 90 degrees whenever the eye is rotated to a temporal position at which the visual axis intersects the side lines.

43. The swim goggles of claim 42, wherein said line of sight extends through a
15 midpoint of the side lens.

44. The eyepiece of claim 43, wherein the side lens is connected to the anterior lens at an angle of approximately 124° to 164° .

20 45. The swim goggles of claim 44, wherein the side lens is connected to the anterior lens at an angle of about 144° .

46. The swim goggles of claim 40, wherein each eyepiece further comprises:

an annular side wall surrounding a respective anterior lens and side lens and extending rearwardly therefrom; and

a posterior frame portion connected to a respective side wall opposite the anterior lens and side lens, the frame portion being shaped to form a water-tight seal around an eye.

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47. The swim goggles of claim 40, further comprising:

a nose piece connecting adjacent nasal end portions of the eyepieces and dimensioned to extend over the user's nose; and

a head strap connected to respective temporal end portions of the eyepieces and

10 dimensioned to extend around the rear of the user's head.

48. Swim goggles comprising:

two frame portions, each being shaped to surround an eye and form to provide a water-tight seal against the skin adjacent the respective eye;

15 two, flat anterior lenses coupled to respective frame portions, each anterior lens being oriented to reside in front of an eye in an as worn orientation; and

two, flat side lenses, each connected to a respective anterior lens and extending rearwardly and temporally therefrom, each side lens being oriented with respect to an anterior lens such that there is no prismatic distortion of an image viewed along a line of sight

20 intersecting the side lens.

49. The swim goggles of claim 48, further comprising two annular, transparent side walls, each side wall connected at one end to a respective frame portion and at another end to a respective anterior lens and side lens.

5 50. An eyepiece for swim goggles comprising a body adapted to be worn over the eye of a user and form a water-tight seal around the eye that isolates the eye from the surrounding environment during use, the body comprising a transparent lens portion that includes a first, anterior lens having a flat anterior surface, wherein the anterior lens is positioned in front of the eye in an as worn orientation, and the lens portion also having at least a second lens having a flat
10 anterior surface, wherein the second lens is connected to the anterior lens at an obtuse angle and extends rearwardly therefrom so as to reduce prismatic distortion of the lens portion.

51. The eyepiece of claim 50, wherein one or both of the first and second lenses are corrective lenses having optical power.

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52. Swim goggles comprising:
a pair of eyepieces adapted to be worn over the eyes of a user, each eyepiece having a posterior surface;
at least two pieces of double-sided adhesive tape that are shaped to be applied to the
20 posterior surfaces of the eyepieces so that the tape can be used to adhesively secure the eyepieces to the skin of the user; and
a set of instructions for informing a user how to apply the tape to the eyepieces.